

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6: <b>H04N 7/26, G06T 1/00</b>		A1	(11) International Publication Number: <b>WO 95/19683</b>
			(43) International Publication Date: 20 July 1995 (20.07.95)
(21) International Application Number: <b>PCT/US95/00563</b>		(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW, SD, SZ).	
(22) International Filing Date: 13 January 1995 (13.01.95)			
(30) Priority Data: 08/181,663 14 January 1994 (14.01.94) US			
(71) Applicant: HOUSTON ADVANCED RESEARCH CENTER [US/US]; 4802 Research Forest Drive, The Woodlands, TX 77381 (US).		<p>Published</p> <p><i>With international search report.</i></p> <p><i>Before the expiration of the time limits for amending the claims and to be republished in the event of the receipt of amendments.</i></p>	
(72) Inventors: CHUI, Charles, K.; 2120 Carter Lake Drive, College Station, TX 77842 (US). YUEN, Pak-Kay; 1528 Hillside Drive, College Station, TX 77840 (US).			
(74) Agents: ANDERSON, Rodney, M. et al.; Vinson & Elkins LLP., 2500 First City Tower, 1001 Fannin Street, Houston, TX 77002 (US).			

BEST AVAILABLE COPY

(54) Title: BOUNDARY-SPLINE-WAVELET COMPRESSION FOR VIDEO IMAGES

(57) Abstract

A method and apparatus for performing video image compression and decompression are disclosed. The video image compression is performed using boundary-spline-wavelet decomposition, in which the wavelets applied to sample locations at the boundaries of image intervals are different from those applied to sample locations within the intervals. The decomposition is performed first for horizontal rows of the image data, and then in a vertical direction upon the results of the first decomposition. Quantization serves to locally round off the higher frequency components of the decomposition, and the decomposition is repeated until the desired compression ratio is obtained. Lossless compression may then be applied to the decomposed image data, and the compressed image is transmitted or stored, depending upon the application. Decompression is effected by lossless decompression of the received data, followed by reconstruction of the image using boundary-spline-wavelets, repeated as necessary to fully reconstruct the image. The reconstructed image can then be displayed on a conventional video display.

